

Namibia

Ministry of Mines and Energy

German Financial Cooperation with Namibia

**GET FiT Bush-To-Electricity Programme for Namibia
Facilitating Investments in Renewable Energy**

(BMZ No. 2017.6821.7)

Tender Document

for

Consulting Services for a Feasibility Study

Annex A: Terms of Reference (TOR)

(1/2018)

**GET FiT Bush-To-Electricity Programme for Namibia
Facilitating Investments in Renewable Energy**

FEASIBILITY STUDY - Terms of Reference

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1 Introduction

1.1 Energy Sector, Renewables and Bush to Electricity in Namibia

The Government of the Republic of Namibia (GRN) has set ambitious objectives to increase the supply of electricity for the country. The rural electrification rate is to increase from 34 percent in 2015 to 50 percent and installed generation capacity from approx. 400 MW to 600 MW by 2020 (NDP5).

The vulnerability resulting from the high dependence on imported electricity has been strongly felt not only in the last decade but as recent as 2015, after South Africa could not export peak-load electricity to Namibia on account of its own power shortages. Due to such vulnerability of the national economy when relying on imports, Namibia urgently wants to increase its own generating capacity, also to avoid buying extremely costly emergency power generation.

Namibia has committed in its INDC that Renewable Energy (RE) shall contribute 70 % to the domestic demand by 2030. In parallel, substantial investments in the expansion, modernization and upgrading of the country's transmission and distribution infrastructure are required to ensure an efficient and reliable power supply.

To meet the investment challenge at hand, the private sector will have to take on a central role in Namibia, as much of the investment costs cannot be borne by the public sector alone. The Government of Namibia acknowledging the importance of private sector involvement in the power sector has asked the Electricity Control Board (ECB), the electricity regulator to prepare an appropriate policy for Independent Power Producers (the IPP policy), which is not yet approved but in its final stages. There is visible progress in the plans and implementation of RE projects in the country:

- There are 12 IPPs producing 57.5 MW from solar PV and wind power plants,
- During 2014 GRN has launched the Interim REFIT Program to promote private sector investments into small-scale (> 5 MW) renewable energy power generation. The rationale of the program is to incentivize investments into national generation output through private sector participation by tapping Namibia's excellent renewable energy resources. The initial portfolio of projects to be promoted under the Interim REFIT program has been capped at 70 MW. To date, nine (combined capacity 45 MW) of the fourteen private RE projects have been implemented, supplying solar electricity to the grid.
- Beyond the Interim REFIT program, in February 2017 the national utility NamPower has signed a Power Purchase Agreement (PPA) with a Spanish-Namibian consortium for the PV plant Hardap (MW 37) at a price of 5.85 EURct/kWh). Additionally, PPAs have been concluded for the 20MW Solar PV GreeNam and the 44 MW wind farm Diaz. In addition, private investors such as the mining industry, regional electricity distributors and private households are also preparing RE projects with a total installed capacity of between 50 MW and 200 MW.

- Recently, the Government finalized the NIRP where provision has been made for electricity generation from biomass, 80 MW by 2035.

Despite the recent progress in classic RE subsectors such as solar PV and wind, **private investment** in the sector faces strong challenges, which can become easily investment barriers for non-conventional RE such as biomass. These obstacles include i) incomplete power sector reforms; ii) the lack of a standardized transaction structure for IPPs (standardized PPA); iii) high risk perception among international investors of investing in Namibia and as such high financing costs; iv) limited practical track record and experience among Namibian equity players in the power sector; v) increasing strains on public finances in Namibia and as such limited capacity of government to provide credit enhancement, notably government guarantees iv) and finally, factors related to biomass fuel supply (i.e. costs of fuel and supply chain coordination)

- The state-owned power company **NamPower** is currently developing Namibia's **first major biomass power plant** to use woodchips from bush with a capacity of 20 MW. The preferred site is Otjikoto near Tsumeb. A feasibility study financed by Sustainable Energy for All (SE4All) is under way and shall be finalized in November 2017. Based on that NamPower will make a general investment decision in 2017. An EPC shall be procured in 2018 and a final investment decision be made by the end of that year. NamPower has acquired the site and the area for harvesting the bush encroachment. The procurement of the corresponding fuel suppliers to harvest these areas shall start with a pre-qualification in mid 2018. Thus, this integrated project is addressing the whole supply chain for BTE, but still has to face and solve the cost challenge of bush harvesting and BTE power generation. Nevertheless, such a project may have the potential to facilitate the establishment and (ramp-up) of the biomass fuel supply industry in Namibia.
- The present GET FIT Bush-To-Electricity Programme for Namibia under this tender aims to strengthen and broaden such approaches with a systematic incorporation of the private sector in BTE, both in fuel supply as in power generation. Accordingly the NamPower BTE approach will be taken in consideration in this FS under tender, but its thematic and regional focus extend further:

BTE FS Coverage and Focus		
Stage / Sector	1. NamPower Project	2. Private Sector Approaches
A. Fuel Supply	<ul style="list-style-type: none"> <input type="checkbox"/> Present and assess approach <input type="checkbox"/> draw conclusions and implications for private sector <input type="checkbox"/> support to strengthening 	<ul style="list-style-type: none"> <input type="checkbox"/> Explore <input type="checkbox"/> analyze and <input type="checkbox"/> recommend
B. Power Generation	<ul style="list-style-type: none"> <input type="checkbox"/> Present and assess approach <input type="checkbox"/> Draw conclusions and implications for private sector 	<ul style="list-style-type: none"> <input type="checkbox"/> Explore, <input type="checkbox"/> analyze and <input type="checkbox"/> recommend

1.2 Namibia: Bush-to-Electricity (BTE)

1.2.1 Encroacher bush and BTE

In Namibia, within the renewable energy sector the very promising solar PV projects are already being implemented by the private sector without external support.

For Bush-to-Electricity (BTE) an enormous potential is perceived in the country, but additional incentives and initiatives are required to unlock investments into this still new and undeveloped area. BTE promises triple benefits, namely electricity, greater social impacts and regaining agricultural potential, which are the objectives of the National Integrated Resource Plan with its ambitious targets to generate 80+ MW from BTE by 2035.

Namibia's eco-system is fragile and heavily impacted by over-grazing through farming activities, which contributed to the dispersion of the "invader bush" already covering more than one third of the countries' surface, reducing the area for agriculture and tourism as well as the ground water later with a notable risk for a country beset frequently with drought.

Although the awareness around economic losses due to invader bush is high in Namibia's relevant institutions, and despite wide knowledge of the associated economic, social and environmental co-benefits, such as preservation of biodiversity, re-cultivation of the land as farmland, ground water protection, tourism and job-creation, so far progress in **rolling out a de-bushing program** has been limited:

- There are domestic, regional and some international markets for traditional encroacher bush products such as charcoal but only rudimentary markets for modern products, such as feeding supplements.
- Encroacher bush is used as thermal energy in the cement production in Ohorongo (largest cement plant in the country a DEG project) and the Windhoek Brewery. Ohorongo Cement is reported to be facing some limitations in continuous supply of fuel due to harvesting problems.
- The 250 kW BTE pilot project based on torrefied encroacher bush "C-Bend" is not in operation due to technical problems.
- Other bush value chain such as animal feed, fencing pole production, improved cook stoves (ICs) projects etc. are conceptualized but not at full implementation or commercial stage.

1.2.2 Earlier Studies and Activities

The Feasibility Study can and has to make use of quite a number of former activities preparing the path for BtE in Namibia:

1. In 2015, the Government of Namibia (GRN), under the auspices of the Ministry of Mines and Energy (MME) had asked KfW to commission a pre-feasibility study to exploit possibilities of renewable power generation from bush under an indicative GET FIT program concept for Namibia,

making use of funds provided by the British Department of Environment and Climate Change (DECC). The rationale of the Global Energy Transfer Feed in Tariff (GET FiT) concept is to remove barriers and foster increased private sector involvement in smaller (typically 5 MW to 20 MW) renewable energy power generation (For detail see 1.3.). The **GET FIT pre-feasibility study** was presented in early 2016 and discussed with MME and various stakeholders during a High Level Meeting hosted by MME.

2. KfW had also sponsored the “**Pre-Feasibility Study for a Biomass Power Plant in Namibia**” developed by WSP Environment & Energy South Africa during 2012/13. That assessment has confirmed that fuel supply from invader bush is sufficient to run a total of up to 170 MW of biomass power projects. Suitable technology for biomass power plants can be supplied to Namibia using modern American and European combustion equipment.
3. In order to explore feasible options for a bush-to-electricity generation project, EIB agreed to finance the Feasibility study under the SE4all Program when KfW agreed to support NamPower through financing the secondment of a **Biomass Consultant to NamPower’s** head office. Since April 2016 the Consultant is advising NamPower in the preparation of the EIB Feasibility Study and supports NamPower in the coordination with the GIZ de-bushing program and the stakeholders from various ministries, farmers, harvesting companies and the electricity supply industry represented by the Namibian Biomass Industry Group (N-BiG).
4. **N-BIG** is currently preparing a draft **Fuel Supply Agreement** for fuel supply from encroacher bush. This Fuel Supply Agreement may be used as basis contract documents under the BTE program. (GIZ de-bushing program, information materials: ([Documentary "De-bushing Namibia"](#)), www.dasnamibia.org).
5. If **NamPower** will invest into a biomass plant as an result of its own **Feasibility Study** this plant may (and shall) also serve as a pilot plant providing valuable insights for the further development of the still nascent Bush-to-Electricity business in Namibia.

1.3 The general GET FiT Approach

KfW Development Bank, along with other stakeholders has developed the GET FIT concept which comprises a comprehensive set of tools including tariff viability gap funding, targeted technical assistance, provision of standardized contract documents (e.g. Power Purchase Agreements; Fuel Supply Agreements Implementation Agreements), risk mitigation instruments (e.g. of fuel supply risk or foreign capital risks) and renewable grid intervention support. By supporting an initial generation of smaller-scale renewable energy IPPs, the GET FiT Program intends to **establish a standardized transaction structure for IPPs** generally.

In Uganda, KfW supported the Government of Uganda in setting up the GET FiT Program which is now in its second year of implementation and has successfully promoted a portfolio of 150 MW of 15 small-scale RE projects sponsored by private developers (IPPs) (www.getfit-uganda.org).

KfW is currently exploring the replication of the GET FIT Program in other countries in Sub-Sahara-Africa, including Zambia (where launch of the program is planned for Q3 2017), Mozambique and Namibia. For each country, the ambition is to design tailor-made programs that take local needs and circumstances into account.

1.4 The GET FIT program approach for BTE in Namibia

The envisaged program shall foster viable **bush-to-electricity projects** (electricity generation by combustion of biomass from de-bushing). Beside the envisaged plant of NamPower neither the investors and the institutional set-up nor the details of the value chain or other generation plants are defined yet.

In general, the GET FIT approach is seen as promising scheme to improve the attractiveness and viability for private investors in BTE in Namibia. Private investments are preferred, but if the FS shows that this would be unlikely even with additional incentives, the approach for public investors (e.g. NamPower and others) should be supported to make sure the economic revaluation and development of rural areas and to unlock the social and environmental co-benefits.

The selected approach has to address existing **challenges** of the bush-to-electricity business:

1. In contrast to other RE technologies and biomass from residues of industrial projects, both of which make use of a given fuel, the fuel for bush-to-electricity has to be harvested at additional cost either by the IPP itself or by separate commercial parties. Business models for the various options of bush fuel supply have not yet been developed and tested as only limited amount of invader-bush is being harvested commercially. Although there currently is no pipeline of advanced bush-to-electricity generation projects, it seems likely that developers and investors will consider the technology when the fuel supply risk has been mitigated and a cost reflecting tariff has been introduced.
2. The overall business model of future BTE is not yet clear. A viability gap remains even when the FIT under the REFIT Program is taken into account.
3. One crucial current challenge is that the building up of bush harvesting capacity is not financially viable as long as off-take is not secured, while the fuel risk impedes investments for BTE generation units.
4. The land ownership in Namibia is a burning issue. At the current moment the majority of bush encroached farmland is privately owned while a small amount is state land. Hence there is a need to provide synergy but also commitment from all parties under the current circumstances. Even though it is not as intense in its current form, it is important to be mindful of ongoing land redistribution schemes and its future regimes directions that may impact (positive or negative) future biomass projects.
5. As a consequence it is not yet clear whether the BTE approach can be attractive enough for private investors and/or whether public institutions have to assume responsibility for (some parts of) the BTE chain.
6. In addition, the various social and environmental co-benefits of bush-to-electricity generation are acknowledged but are not taken into account,

e.g. the energy sector is primarily benchmarking total generation costs against avoided costs while ignoring positive externalities.

The NamPower biomass project is addressing such practical challenges (e.g. No.3 and No.4 in the list above) and may contribute to reduce the uncertainty of demand for BTE wood chips.

Based on the findings from the afore-mentioned studies activities, KfW on behalf of the Namibian Ministry for Mines and Energy is now procuring a consultant to carry out a **Feasibility Study** for BTE Namibia (“GET FiT BTE Study”). The feasibility study shall explore viable support options, first of all incremental cost support for BTE wood chips, and possibly to complement the efforts of NamPower in the future, as well concessional loans to IPPs and structures to mitigate the biomass fuel supply risk and the currency risk for the IPPs and elaborate an adequate institutional approach.

This assignment shall start as early as possible in 2018 and is projected to conclude in the third quarter of 2018. A full program proposal is expected to be completed by the end of 2018.

This Feasibility Study will provide the basis for a new GET FiT-type program in Namibia to support private investment into the BTE fuel supply chain and possibly further BTE power plants. The Terms of Reference (ToRs) for the study are detailed below:

2 Objectives for the GET FiT BTE Feasibility Study

The main **objectives** for the GET FiT BtE Feasibility Study (“GET FiT BtE Study”) are manifold:

Phase A	1. The results of the existing pre-feasibility studies (PFS) and Feasibility Studies are verified and, if required, updated and extended.
	2. The GET FIT Approach is confirmed as a viable and most adequate approach to contribute to de-bushing and power generation OR alternative approaches (e.g. with public institutions) are identified.
Phase B	3. The economic and financial mechanisms of the NamPower biomass project are analyzed (fuel supply AND power generation)
	4. A general bush-to electricity business and market model is developed (fuel supply AND power generation)
	5. Potential investors for BTE fuel supply (and for future BTE power generation) are identified .
	6. A GET FiT BTE Toolbox is developed and designed in detail.

	7. The institutional set up and Technical Assistance measures for the GET FIT BTE Program are developed.
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These objectives are to be achieved in close collaboration with the Ministry of Mines and Energy (MME) as the key partner, further relevant national stakeholders (e.g. Ministry of Agriculture, Water and Forestry, MAWF; ECB, the electricity sector regulator; **NamPower**, the off-taker), as well as with private developers, commercial banks, DFIs and KfW.

3 Scope of Work and Tasks

Based on the above, the detailed scope of work and tasks consists of the following elements:

3.1 Synthesis of results of existing BtE studies for Namibia and verification and update of the GET FIT pre-feasibility assessments

The consultant shall present a commented synopsis and synthesis of the results of recently elaborated studies on BtE in Namibia arranged by topics along the BtE chain (see 1.2.2. of these TOR), summarized in a corresponding matrix (lines by elements of the chain; columns by studies).

With reference to the findings of the recent GET FIT pre-feasibility study the consultant shall review and, where necessary, amend and / or update the proposed conceptual outline for the scope and the components of a GET FIT program in Namibia.

3.2 GET FIT opportunities and approaches

Eight weeks after the start of the assignment preliminary results of the above verification exercise and own analysis shall be presented to and discussed with MME and KfW, in a one-day workshop and discuss whether the study shall continue with a detailed program approach.

Taking into consideration the approach for the possible NamPower investment in a biomass power plant the Consultant shall present his working hypotheses whether GET FIT is indeed a viable approach sufficient to foster private investment in the BTE and what kind of GET FIT approaches may be adequate. The consultant shall present his findings and assessments on:

- BTE fuel supply potential and risks (incl. harvesting risks; recent practical experience on actual cost of de-bushing; alternative demand for debushing products);
- Targeted group of bush harvesters
- BTE power industry potential – Private and public
- Role and implications of NamPowers planned Biomass power plant
- Options for the value chain and implications for GET FIT
- Additional requirements for the development of a BtE industry
- Alternative institutional set-up and roles/support by public institutions for (parts of) the BTE supply chain

- Comparison of prospects of success for a GET FiT Approach and the proposed alternatives.

The Consultant shall furthermore present as a preparatory input for this workshop:

- Approaches to mobilize private investment into small-scale BTE projects in Namibia shall be identified and outlined. One alternative option could be Public-Private-Partnership for a SPV for fuel supply which could also be supported by a preferential feed-in scheme and German funds. Other alternatives may also be explored.
- Comparison of the GET FiT approaches as SWOT
- Based on the comparison, a clear recommendation should be formulated.
- Key question: Which of the two approaches (GET FiT or the proposed alternative) is practically more viable?

3.3 Development of a BTE business model and identification of potential investors

NOTE: This part may need some adjustment depending on the decision of the stakeholders on the viability and preferred institutional approach of the BTE approach at the workshop.

Although there had been some analysis of the different elements of the BTE value chain, there is a lack of formalized business cases for the alternative approaches to organize and link harvesting, social impacts, BTE fuel supply and power generation as elements in an overarching business model for the whole chain and sector.

The consultant has to investigate and assess the best way to structure the BTE chain to maximize social benefits, and identify – beyond NamPower - potential private investors and partners for future a pipeline of biomass projects. Details of viable BTE business models need to be developed, and are to be elaborated in a consultative process involving NamPower, interested IPPs and biomass harvesters.

In case there are no potential private investors for BTE power generation, the Consultant shall investigate and assess the option to focus on the NamPower biomass project for which the GET FIT program may promote the fuel supply. In this case a fuel supply model with strong private sector participation fitting into this arrangement shall be prepared and assessed.

Along the supply chain the Consultant shall take into consideration NamPower's possible investment and its implications for the respective issue, especially in the likely region of that investment. Although contributions to strengthening NamPower's approach is welcomed, doubling of activities shall be avoided as strictly as any kind of activities which could crowd out potentially or put at risk NamPower's activities in the fuel supply chain in their region.

3.3.1 BTE fuel supply business model and its components

According to the presently known elements of the NamPower biomass power plant, NamPower has acquired the corresponding land/harvesting rights and intends to tender three contracts for BtE fuel suppliers.

Although taking this approach into consideration the consultant should investigate in a broader perspective – both regionally and institutionally – in the BtE sector including discussions with stakeholders on potential industry structure.

The objective of the latter is to identify further viable approaches to broaden de-bushing and BtE power generation by covering a wider area and incorporating the private sector. Various options shall be explored for the structuring of the supply chain.

Simplified Example for one potential allocation of tasks within the supply chain of BTE fuel				
Economic Units	Individual Land Owners	Third Party	Market Intermediary	(IPP) Power Plant / NamPower Biomass Power Plant
General Role	Retail Seller	Service	First Buyer Bulk Seller	Final Buyer
Investment Machinery for de-bushing		X		
Physical de-bushing		X		
Recollection		X		
Chipping		X		
Transport		X		
Storing			X	
Combustion				X
Cost (\$) per unit				
Benefits (\$) per unit				
Net Benefit (\$) per unit				
Price of BTE fuel per t				

The Consultant shall analyze the different options to structure the fuel supply chain with the objective to create a safe and efficient supply chain, which ultimately - with GET FiT support - offers reliable benefits for each of the players in the value chain and minimizes economic costs for fuel supply.

3.3.2 Identification and pre-assessment of BTE fuel supply pipeline

Based on the PFS and after consultation with the GIZ de-bushing program, N-BIG and making use of the soon to be concluded NamPower Feasibility Study, the consultant will identify a number of potential suppliers of bush-fuel for interviews and pre-assessments on-site in Northern Namibia, including some outside the circle of NamPower's envisaged fuel suppliers. .

The Consultant will take into account that currently private sector projects (cement, brewery, charcoal etc.) are already using debushing products for combustion or other value chains that are under development. In as much as consolidation and scaling up is welcomed, crowding out of such efforts by the new BTE GET FiT program shall be strictly avoided. Thus, additional supply sources and resources shall be identified.

The consultant will identify a list of potential bush fuel suppliers capable to derive an additional fuel supply (without taking into account NamPower's biomass power plant fuel supply) to cover the demand for about additional 30 MW biomass power plants.

Furthermore the consultant will carry out pre-assessments with a review of agricultural/ forestal, technical, legal, environmental and social (both according to IFC standards), financial and economic aspects. The consultant will elaborate corresponding BTE fuel supply business cases (by size of farm/bush Harvest) and define the investment needs for BTE supply.

It will also include a high-level assessment of BTE supply chain integration aspects (technical, financial, transport etc.) of these projects.

This should allow development of BTE fuel supply project profiles, incl. brief SWOT analysis and assessment of the project risks and challenges, and the need for support (financial, technical etc.) for BTE fuel supply.

As bush fuel supply and extension of financial support both will require active solvent farms, the profile has to include an outlook about the general profitability of the farm and the solvency of the farming company.

The goals are

- to substantiate the general assumptions of the BTE program,
- to validate the assumptions and parameters for the respective basic financial model (the financial model shall distinguish local/foreign currency to allow for the assessment of foreign exchange risks, see also 3.4.1, 4.
- to get project specific data to facilitate the calibration of a possible GET FIT schemes (including grid integration costs) and
- to establish contact with interested BTE fuel suppliers.

3.3.3 Identification and pre-assessment of BTE power plant pipeline

To complement the efforts of NamPower and prepare the path for future private investment in the sub-sector the Consultant will pre-assess a pipeline of private BTE Independent Power Producers (IPPs) based on the pre-feasibility assessment as well as additional market intelligence (interviews with prospective developers, financiers, relevant government entities etc.) to be gathered by the Consultant. This shall include visits to the potential sites, at least for major projects.

The initial assessment will include a high-level review of technical, legal, environmental and social, financial (equity base and access to debt finance) and economic aspects of the proposed BTE IPPs. It will also include a high-level assessment of grid integration aspects (technical, financial) of these projects.

This should allow elaborating project profiles, developer profile, and brief SWOT analysis including a first assessment of the project challenges and of the potential contribution of a possible GET FIT scheme to the future project development and implementation and the possible needs for public investment.

The goals are

- to validate the assumptions and parameters for the respective basic financial model (the financial model shall distinguish local/foreign currency to allow for the assessment of foreign exchange risks)
- get project specific data to facilitate the calibration of the possible GET FiT schemes (as well as for grid integration costs) and
- to establish contact with interested project developers and financiers for possible future BTE IPPs.

3.3.4 BTE Transaction Structures

The Consultant shall assess the needs and options for future transaction structures (direct, indirect; with/without intermediary) between BTE fuel supply and BTE power generation.

The Consultant shall elaborate proposals to assure a complete supply chain structure. All necessary technical, organizational and institutional aspects shall be addressed. If needed, support structures shall be elaborated including business model and institutional layout for intermediary between BTE fuel supply and BTE power generation.

3.3.5 Assessment of further sites

The definition of the site location depends on various factors incl. BTE power plant size, its fuel supply perimeter, fuel supply transport cost and cost for grid connection. Based on the Pre-Feasibility Study for a Bio-mass Power Plant in Namibia” (2012) and in coordination with Nampower – beyond Otjikoto near Tsumeb - the following sites have been suggested as locations for biomass power plants:

- Gerus near Otjiwarongo
- Omaere
- Ohorongo (cement factory)
- Osona substation (close to Okahandja)
- Omatjenne (near Gerus substation)
- Auas
- Possibly: Okakarara

The consultant shall rank these formerly proposed locations according to their individual feasibility. However, the Consultant shall take into consideration Nam-Power’s possible investment in this regard and the regional implications for the demand for biomass fuel.

For each proposed site the consultant shall pre-estimate the cost of the BTE power plant including grid connection.

3.3.6 Assessments of grid-aspects

A high-level grid integration assessment for BTE power supply shall reflect the findings of the ongoing SE4All Feasibility Study, the “WSP Environment & Energy South Africa Pre-Feasibility Study for a Bio-mass Power Plant in Namibia” (2012) as well as the Consultant’s recommendations on preferential sites described under 3.3.5. This assessment shall be carried out in close consultation with Nam-

Power and shall include the various operation and integration mode (base load, intermediary load, peak load) potentials and costs of BTE power supply as well as their impact on grid control and stability.

3.3.7 Legal Aspects of feed in

The Consultant shall analyze and assess the legal and regulatory conditions of feed-in: legal admissibility; claim rights; procedures and conditions; cost allocation; lacks of regulations; implementation agreements and handlings.

3.3.8 Financing for RE Investment

The Consultant shall explore the interest, capacity and possible terms of the local financial sector to finance RE projects, especially BTE and/or the corresponding BTE fuel supply, in interviews with the GIZ de-bushing advisory service who published the leaflet “Financing Bush Control (www.dasnamibia.org) and with the relevant financial institutions in Namibia.

3.3.9 Framework Conditions

Other key developments in the sector to be followed throughout preparation of and implementation of Feasibility phase include:

- The impact and implications of Namibia’s National Integrated Resource Plan (NIRP)
- The impact of the National Energy Policy and Namibia’s RE Policy
- The update of the IPP framework for Namibia, as is currently undertaken by the ECB
- Development of solar RE tenders in Namibia and progress of projects under the REFIT program
- National Development Plan 5
- Namibia’s NDC submission

3.4 Development and detailed design for the possible GET FiT Toolbox or alternative approaches

The Consultant shall develop the detailed design and structure of a GET FiT Program to support private investment in the BTE supply chain and/or BTE power generation in Namibia, and prepare the program for implementation. As indicated above, in designing the program lessons learned from GET FiT Programs already under implementation in Uganda and Zambia shall be taken into account. However, more importantly, the design of the program for Namibia shall take local needs and specific requirements into account

In developing the detailed design and implementation structure of the elements of a feasible program, at a minimum the Consultant shall outline the details of the following project components:

- Finance: Long term senior debt and concessional finance, Mezzanine finance; Subordinated loans; Local currency loans; DFI funding mechanism and Private Finance Facility (all if applicable):
- REFIT Tariff Support scheme (if applicable)

- Reverse RE tender auction with gap premium payments (if applicable)
- World Bank Partial Risk Guarantee (PRG) or other guarantee schemes / risk mitigation instruments;
- Technical Assistance Facility;
- Review of existing legal documentation (i.e. Standard Contract Documents formats such as Power Purchase Agreements (PPA), Implementation Agreements (IA), Power Transmission Agreements etc.).

3.4.1 Design of Support Scheme

The Consultant is expected to develop the detailed design of a GET FiT Program for support to bush-to-electricity projects in Namibia:

1. Development of a high-level program to design to promote implementation of an initial portfolio of BTE projects in Namibia (covering as well the fuel supply chain for NamPower's biomass power plant project); evaluation of alternative support mechanisms required, including:
 - Potential tariff support
 - Potential risk mitigation support
 - Potential technical assistance required
2. Assessment of the requirements for a top-up tariff based on a high-level tariff analysis (or, if available, analysis of the tariff model that underlies the REFIT determination in Namibia) for BTE
3. Identification of suitable modalities for selecting BTE IPPs and BTE fuel suppliers that may be eligible for REFIT top-ups from the program (including definition of selection criteria). The consultant shall take into account public procurement requirements and alignment with national systems and procedures under the REFIT as well as the responsibilities of the electricity regulator. The possibility of using a reverse auction mechanism to determine the tariff should be considered in this context.
4. Development of different options for the financial GET FiT support: tariff top-up and other support options. Implications for the GET FiT business plan incl. financial projections shall also be worked out.
5. Development of a financial model for the sample BTE IPP (generation and/or fuel supply) case. In addition, a portfolio of BTE projects shall be modelled to indicate funding requirements under different support scenarios; Financial assessments shall be undertaken for the entire supply chain: BTE fuel supply, BTE intermediary, BTE power plant
6. Important elements of the assessment of the different support options are efficient use of funds (e.g. additional RE capacity/monetary unit) maximum impacts, avoidance of windfall profits for developers/investors by GET FiT top-up tariffs. Definition of burden-sharing between possible GET FiT Program and the national utility/ Government.
7. Outline of needed standard legal documents, such as e.g. Fuel Supply Agreements (FSA); the Consultant shall take into consideration possible developments of the fuel supply tender of NamPower in this regard.

8. Definition of burden-sharing between possible GET FIT Program and the national utility/Government.
9. Layout of a possible governance and management structure for a REFIT top-up program.

3.4.2 Risk Mitigation

The Consultant is expected to determine, in close consultation with prospective bush harvesters/BTE fuel suppliers, BTE IPP developers, financiers as well as relevant government representatives (offtaker, regulator, Ministry) requirements for additional risk mitigation, above and beyond the support Namibia is prepared to provide under the PPA) for the BTE IPPs (and BTE fuel suppliers).

Based on that assessment, the Consultant is expected to identify sources of risk mitigation that could be applied for BTE IPPs that may receive support under the GET FIT Program. This may include consultation with government representatives for public support schemes (e.g. tax write offs, tax concessions etc) as well as with potential risk mitigation providers, including (but not limited to) the Africa Trade Insurance Agency (ATI), the World Bank or the AfDB.

The Consultant is expected to explore alternative options and to assist KfW and other relevant stakeholders in designing an appropriate risk mitigation approach for the GET FIT Program.

The risk assessment shall include – but most not be limited to – the following risks:

- Fuel supply risk: Options and design consideration for fuel supply risk mitigation
- FX risk; Assessment of relevance of FX risk; the current practice of dealing with FX risk (for non-RE purchases); impact of the program on the FX risk of the off-taker. The necessity of mitigation shall be analyzed and possible mitigation options are to be proposed.
- Off-taker, political and other risk: Assessment of the necessity for political risk insurance and off-taker risk mitigation.

3.4.3 Pre-Assessment of Standard Documents and Tax Issues

As part of his Feasibility Study, the Consultant is expected to list the necessary legal documents for GET FIT, assess the existing standard legal documentation for their adequacy for implementation of small-scale BTE power transactions in Namibia.

Furthermore The Consultant shall clarify the tax treatment of any support provide to BTE IPPs and BTE fuel suppliers under the GET FiT Program.

3.5 Development of institutional set up for the Program

The Consultant shall develop a suitable institutional structure to facilitate the implementation and monitoring of the Program in Namibia. The institutional structure shall be hosted by a partner institution in Namibia (e.g. Ministry of Mines and

Energy). Options of the legal form and set-up shall be analyzed to optimize the efficiency of implementation and impact.

The institutional model should be developed in close consultation with MME as key partner institution and KfW and address the following key questions:

1. Identification of a national champion: Which public institution is best placed to be the focal point / implementing agency for GET FiT (Ministry of Mines and Energy? Ministry of Finance? Regulator? Others?)? How could GET FiT be managed by the identified institution? Is there need for a separate Project Implementation Unit (PIU)? Technical assistance? In addition to identifying the primary implementing agency, how can/should other public entities be involved in the project governance and implementation? What kind of coordination and interfaces are needed in regard to NamPower's activities in the BtE sector.
2. In case of GET FiT: Involvement of Financial Sector: The Consultant should meet various financial institutions and explore their potential willingness and capacity to support the GET FiT approach. Selected institutions should have a proven (self) interest in a GET FiT Program and buy in to the concept
3. Role of consultants: The Consultant shall describe the comprehensive support requirements (technical, legal, monitoring and evaluation etc.) for the further preparation and implementation of the Program. What kind of assistance and capacity is needed? How will they work together and who will ensure overall coordination? Their scope of works shall be outlined including rough cost estimates for the different tasks. How would the program outcomes and impacts be monitored to provide evidence of result-base, solid foundation to national parties (national level), and donor, partners (international)?
4. Role of KfW: Develop recommendations for the role of KfW in the Namibia set-up bearing in mind that the implementation consultant should take over responsibility in the design and implementation of the project, including mobilizing donor funding, managing relations with development partners, selection of projects, the coordination of different technical assistance measures (including PPA standardization and support to the regulator) and liaison with private investors and public entities. Proposal for overall project set up, need for consultant support and an outline of the scope of works should be developed to show how this can be achieved.

3.6 Development of elements for the GET FiT Program

3.6.1 TOR and cost assessment for GET FiT Coordinator

A GET FiT Coordinator may facilitate then the implementation of the GET FiT program in Namibia. The Consultant shall broadly describe the tasks, integration in partner GET FiT host institution, interactions with the Namibian counterparts, donors and all private sector economic units in implementation of the proposed GET FiT scheme. A preliminary cost assessment including all ancillary cost shall be included.

3.6.2 GET FiT Program Proposal (full business case to mobilize donor resources for the program)

The Consultant is expected to develop a full GET FiT Program Proposal that will be used to mobilize donor funding for the program. The basic structure of the proposal shall follow the structure for Business Cases that are developed for consideration by the Green Climate Fund (GCF). The basic outline of the Business Case will be attached to the Request of Proposals.

The business case shall include all results of the tasks described under 3.1.-3.4. In addition, the program proposal shall cover the following questions:

- Development of cost estimate for the proposed GET FiT Program
- How much private capital can potentially be leveraged through the program (equity and debt)? At what cost?
- What is the capacity and interest of the local (regional) banking sector to provide lending to small-scale renewables? This shall include interviews with the most relevant financial institutions.
- What is the potential climate mitigation potential of implementing a GET FiT support program (quantity savings in CO₂ emissions), and what would be the CO₂ abatement cost?
- What are the economic impacts of implementing a possible GET FiT Program / financial impact on sector finances (e.g. replacement of thermal power)?
- Macro-economic perspective on GET FiT and Quantification of developmental benefits that could be harnessed
 - Impact on the economy, i.e. employment, state revenues
 - Impact on stability of power supply
 - Number of beneficiaries in terms of increased electricity access
 - Diversification of generation mix/ introduction of new RE technologies
 - Average generation costs with and without GET FiT
- Broader justification of de-bushing including environmental and economic co-benefits
- Level of interest and possible technical/financial contributions from the relevant government entities in the country in the design and implementation of a GET FiT support program
- Role of other donors and National burden sharing in supporting a potential GET FiT Program in the country including burden-sharing arrangements and identification of additional funding sources.

4 Organization of Work

The Consultant is expected to develop the Feasibility Study in a highly interactive way in close collaboration with relevant Namibian partners at the national level (Ministry of Mines and Energy, Ministry of Agriculture, Water and Forestry, regulator, Ministry of Finance, NamPower, others), as well as with private developers, commercial banks, DFIs and KfW. This requires an active approach to stakeholder management which in turn implies local presence in Namibia for the duration of the engagement. The Consultant shall provide his own office space during the assignment.

KfW will make available to the Consultant any relevant background studies where they are available.

As part of 3.6, the Consultant shall **organize a second workshop in Windhoek, this one** for key stakeholders and potential financiers, to discuss and provide comments on the Draft Implementation Report 18 weeks after commencement of the study. The cost for the workshop preparation and the Consultant's participation shall be included in the budget for this feasibility study. The cost of the participants shall be borne by themselves.

5 Deliverables and Schedule

It is envisaged that the study will be carried out within a period of about 6 months.

The study deliverables will be discussed and agreed on in detail before commencement of the study and will include the following components:

Week No after commencement of study	Process	Deliverable
4	Submission of Draft Report Review, Assessment and Scoping	Draft Report including key results from research on tasks described under 3.1 and 3.2.
6	Submission of <u>Report Assessment and Scoping</u>	Report with an executive summary of no more than three pages and including stakeholder comments
8	1 st Workshop	Assessment of different approaches and their practical viability for promotion of Bush-to-Electricity projects and decision to continue on either a GET FIT approach or (ii) BTE pilot project
20	Submission of Draft Implementation Report	Draft Implementation Report: Key results from research on tasks 3.1.-3.5
24	2 nd Workshop for key stakeholders and potential financiers to discuss and provide comments on Draft Implementation Report – To be held in Windhoek, Namibia. Stakeholders provide comments for inclusion into the Final Report. (e.g during the workshops)	Minutes of Workshop with key findings
27	Submission of Final Report	Final Report: Final results from research on all tasks described in chapter 3 including stakeholder comments and with an executive summary of no more than three pages.
30	Submission of a draft Program Proposal to potential cooperating partners who will support the program two weeks after Phase II Workshop	Draft Program Proposal (fund raising proposal)

Further intermittent meetings with the Consultants and the relevant stakeholders may be called for if considered necessary. The consultant shall propose a detailed time schedule as part of the documents for bid submission.

6 Consultant and team member qualifications

6.1 Consultant and team composition

The Consultant needs to be adequately qualified for this broad interdisciplinary assignment, covering legal, economic, financial and technical aspects as well as environmental and social aspects.

In particular it is **required**, that the **Consultant** has sufficient knowledge and experience in at least the following fields:

- Prior experience with development of grid-connected small-scale biomass projects and de-bushing in emerging or developing countries (**Minimum requirement**).
- Prior experience with RE power generation in Southern African region (**Minimum requirement**).
- The Consultant should be familiar with the legal, institutional and regulatory setup of the Namibian power sector.
- The Consultant shall have experience in working with development partners and Development Finance Institutions (DFIs) regarding their project evaluation and financing criteria as well as a demonstrated experience in energy project and infrastructure financial and economic analysis.
- Project language shall be English. The Consultant shall be fluent in any respect in this language.

Overall, in his submission, the Consultant shall present his capability to carry out the assignment taking into account the above stated requirements. Failing to meet one or more of the minimum criteria leads to disqualification.

It is the responsibility of the consultant to form a team according to his own assessment of the needs of the project. However, this team shall comprise at least the following four key experts as members:

1. Finance Expert as Team Leader/Project Manager;
2. Technical Experts (RET power generation; Grid integration; Biomass /Agriculture/ Forestry)
3. Legal Specialist;
4. Environmental and Social Expert(s), preferably one person covering both areas

The Consultant team will have to cover ALL economic, environmental and social aspects with the respective qualified experts.

With proper experience and expertise individual experts may cover several of the aforementioned key expert tasks, contributing to a lean team approach.

The team and its experience shall reflect the Consultant's experience in the required areas, especially those of the minimum criteria.

6.2 Qualification of Key experts

The Key Experts shall fulfill the following general qualifications (demonstrated in the CV) and area-related experience and proven track record (project list). Minimum Requirements are explicitly marked as such.

Key Expert 1	Financial Expert as Team Leader
Academic Degree	Master Level
Professional Experience	10 years
Area/Task-related experience	<ul style="list-style-type: none"> - Experience as developer, consultant or financier in private (Small scale RE Projects and or programs (Minimum Requirements) at least three relevant projects or programs) - Feasibility Studies - Promotional Programs - Financial sector in SSA - Financing of RE projects, preferably participating in financial closure - Experience in promotional programs/funds with loan applications - Financial Modelling
Regional Experience	Regional Experience in the energy sector in SSA (Minimum Requirements at least three relevant projects or programs), preferably in Namibia/the Southern African region.

Key Expert 2 a	Technical Expert - RET (Biomass)
Academic Degree	Engineer
Professional Experience	7 years
Area/Task-related experience	Small scale RE Projects in biomass combustion in Developing Countries various RET
Regional Experience	SSA

Key Expert 2 b	Technical Expert – Biomass/Agriculture/Forestry
Academic Degree	Degree in Agriculture/Forestry/Environmental Science or similar
Professional Experience	7 years
Area/Task-related experience	Biomass production, harvesting and processing for power generation
Regional Experience	Worldwide, preferably in dry zones

Key Expert 3	Legal Expert (Required for possible details of a GET FiT approach)
Academic Degree	Master Level
Professional Experience	7 years in legal services
Area/Task-related experience	RE projects
Regional Experience	<p>Southern African region, preferably in Namibia</p> <p>If the expert is not familiar with the legal system of Namibia, it is strongly recommended to the consultant to cooperate with a Namibian lawyer for the finalization of the respective legal documents of GETFiT. Such cooperation shall be budgeted accordingly.</p>

Key Expert 4a/b	Environmental Expert / Social Expert
Academic Degree	Master Level in a relevant natural science (environment, biology etc) and or technical discipline
Professional Experience	7 years

ence	
Area/Task-related experience	Rural Areas Biomass projects The expert shall be demonstrably familiar with the IFC performance standards as well as environmental and social standards applied in Namibia,
Regional Experience	Worldwide, preferably in the African region and Namibia

7 Reporting

The consultant will report to:

KfW

Claudia von Fersen

Palmengartenstr. 5-9

60325 Frankfurt am Main, Germany

Claudia.Fersen@kfw.de

8 Background Documents

The following background documents will be provided to the Bidders attached to the Request for Proposals in order to provide a broader overview of the subject at hand:

- A) Information on the GET FiT Programme Uganda
- B) GET FIT Market Assessment South Africa
- C) Project Concept Note GET FiT- Namibia.
- D) GET FIT pre-feasibility study Namibia.
- E) WSP Environment & Energy South Africa - Pre-Feasibility Study for a Biomass Power Plant in Namibia” (2012)
- F) NamPower –Encroacher Bush Biomass Power Project: Presentation Nov. 2017
- G) National Integrated Resource Plan
- H) Harambee Prosperity Plan
- I) RE Policy Namibia
- J) National Energy Policy
- K) Draft IPP Policy
- L) The Forestry and Environmental Authorizations Process for Bush Harvesting Projects booklet

It shall however, be the responsibility of the Consultant during the assignment to gain a complete overview of all relevant documents for each of the target countries.